

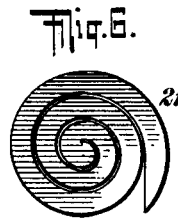
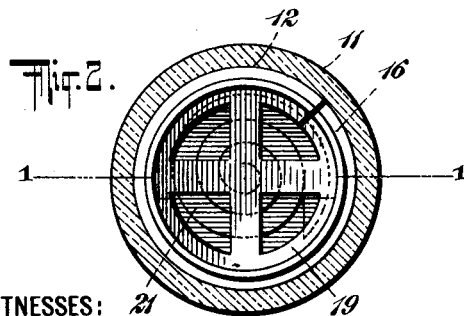
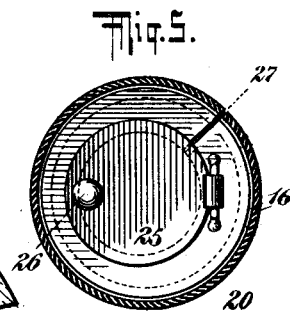
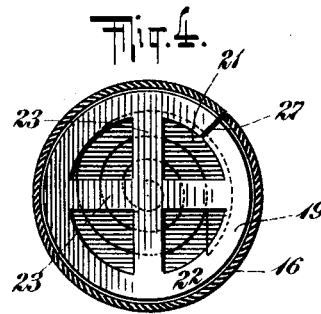
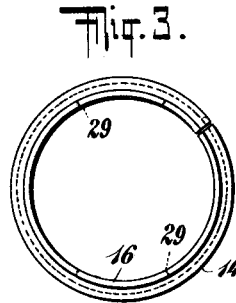
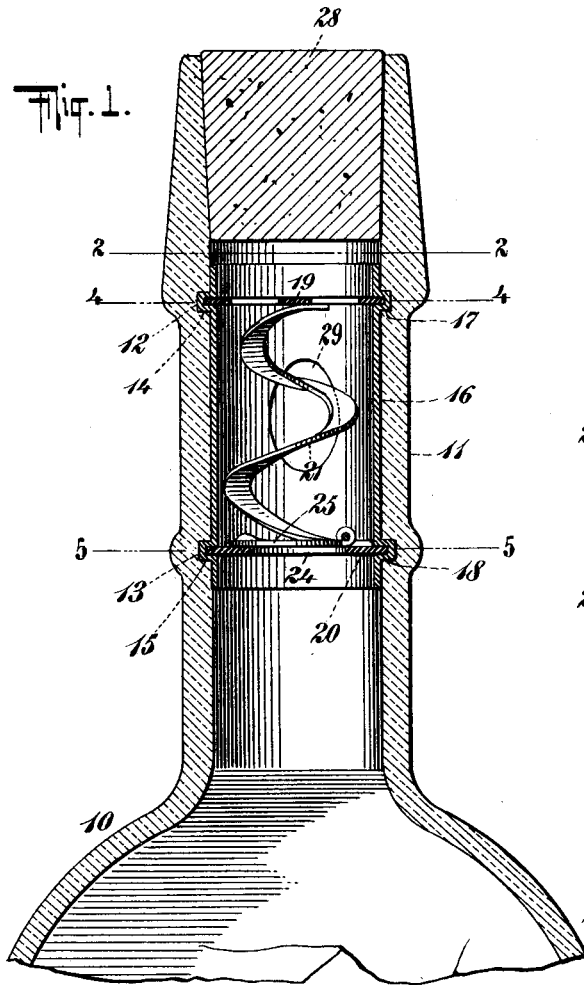
No. 675,942.

Patented June 11, 1901.

A. A. FRECKMAN.
NON-REFILLABLE BOTTLE.

(Application filed Mar. 29, 1901.)

(No Model.)



WITNESSES:
Gustav Dietrich
John Fehlebeck

INVENTOR
Albert A. Freckman
BY *Chas. C. Gill*
ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT A. FRECKMAN, OF PARKRIDGE, NEW JERSEY, ASSIGNOR OF ONE-HALF TO GEORGE E. DUNCAN, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 675,942, dated June 11, 1901.

Application filed March 29, 1901. Serial No. 53,410. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. FRECKMAN, a citizen of the United States, and a resident of Parkridge, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The invention relates to improvements in non-refillable bottles; and it consists in the novel features, structure, and combinations of parts hereinafter described, and particularly pointed out in the claims.

The object of the invention is to produce a bottle having within its neck means for preventing the refilling of the bottle and which bottle while containing the means for preventing refilling will permit of a proper flow of the liquid therefrom.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section through the neck portion of a bottle constructed in accordance with and equipped with an attachment embodying my invention. Fig. 2 is a horizontal section of same on the dotted line 2 2 of Fig. 1. Fig. 3 is a top edge view of the cylinder which fits within the bottle-neck and in use is adapted to hold the attachment for preventing refilling. Fig. 4 is a detached top view, partly in section, of the device for preventing refilling, which when in use is held within the cylinder shown in Fig. 3, Fig. 4 being taken on the dotted line 4 4 of Fig. 1. Fig. 5 is a horizontal section on the dotted line 5 5 of Fig. 1 of the device for preventing refilling, and Fig. 6 is a detached top view of the volute spring which forms a portion of the attachment for the bottle-neck.

In the drawings, 10 designates a bottle which, except at its neck portion 11, will be of any suitable form, character, and construction. The neck portion 11 of the bottle will also be of any suitable or convenient construction, with the exception that it will be formed with the upper and lower annular horizontal grooves 12 13 to receive the annular horizontal beads 14 15, formed on the cylinder 16, which fits within the bottle-neck and is preferably formed of spring sheet-steel

and has the said annular beads 14 15, which form flanges to lock within the annular grooves 12 13, whereby the cylinder 16 becomes locked within the bottle-neck. The formation of the beads or flanges 14 15 on the cylinder 16 results in the creation of inner annular grooves 17 18 in said cylinder 16, and within these annular grooves 17 18, formed in the inner walls of the cylinder 16, are secured the upper and lower plates or disks 19 20, as shown in Fig. 1, which are connected by the volute spring 21, the latter being at its lower outer end secured to the plate or disk 20 and at its upper inner end secured to the upper plate or disk 19. The spring 21 may be formed from a flat disk of sheet-steel in the manner indicated in Fig. 6, and when in position within the bottle-neck the spring 21 will always be under a tension tending to return it to its flat position denoted in Fig. 6.

The upper disk or plate 19 contains commodious openings in its upper end, as more clearly indicated in Fig. 4, in which it will be seen that the said upper plate or disk 19 is formed of an annular ring 22, having its central opening traversed by cross-bars 23, which impart sufficient strength and rigidity to the plate or disk 19 without unduly interfering with the flow of the liquid from the bottle. The upper end of the spring 21 will be secured to the center of the upper plate or disk 19, so that its downward-pulling tension may act centrally of said disk or plate 19.

The lower disk or plate 20 contains a large central opening 24, and upon this plate or disk 20 is secured, preferably by hinging, the disk valve 25, which when in its normal position upon the disk or plate 20 will close from the upper side the opening 24 and prevent the passage downward of any liquid into the bottle. The disk valve 25 when the bottle is tilted or turned at an angle may open upward a definite distance or until it meets the spring 21 and is arrested thereby, said spring permitting the disk valve 25 to open upward to a sufficient extent to enable the proper outflow of the liquid, but preventing said disk valve 25 from opening unduly upward or being exposed to the trick of being held open. The disk valve 25 closes by gravity, and it may have a small weight 26 ap-

plied thereto at its outer edge, so as to aid in closing the same.

The lower end of the contractile spring 21 is secured to the lower disk or plate 20 at the outer side of the hinge for the disk valve 25, so that said spring will enable the proper operation of the valve 25 and at the same time protect said valve. The spring 21 when in position within the bottle-neck forms, in effect, an interposed plate between the disks 19 and 20, but at the same time offers substantially no obstruction to the outflow of liquid from the bottle.

The cylinder 16 is in the form of a split tube, as shown, so that preparatory to its insertion within the bottle-neck its edges may be lapped and the diameter of the tube reduced to a sufficient extent to permit of the insertion of the tube within the bottle-neck until the flanges or beads 14 15 of the tube reach the annular grooves 12 13 in the bottle-neck, at which time the natural spring in the cylinder 16 will cause the latter to spring outward and move the said flanges 14 15 into the said annular grooves 12 13, whereby the said cylinder becomes locked within the bottle-neck. Prior to the insertion of the cylinder 16 into the bottle-neck the said cylinder will be supplied with the interior mechanism represented by the upper and lower plates or disks 19 20 and spring 21, the disk or plate 19 having its edges inserted within the groove 17 of the cylinder 16, the disk or plate 20 having its edges inserted within the groove 18 of said cylinder 16, and the spring 21 being extended intermediate said disks or plates 19 20, as shown in Fig. 1. Means must be provided for the contraction of the diameter of the disks 19 and 20 with the contraction of the cylinder 16 preparatory to the introduction of the latter, carrying said disks 19 20 into the bottle-neck, and to this end I slit at one or more points, as may be desired or found necessary, the edge portions of the disks 19 20, as denoted at 27, so that with the overlapping of the edges of the cylinder 16 the disks 19 20 at the points 27 may have their edges overlapped, whereby the diameter of the disks 19 and 20 may be reduced correspondingly with the reduction of the diameter of the cylinder 16 and the whole be inserted within the bottle-neck at one time, the result being that when the cylinder 16 reaches its position within the bottle-neck it will expand its flanges 14 15 into the annular grooves 12 13, and the disks 19 20 will expand to their original proportions, being of spring metal, and snugly fill the grooves 17 18 in said cylinder 16, whereby said disks 19 20 become locked within the bottle-neck and in proper relation to one another.

I prefer that there be a space of about one inch between the disks or plates 19 20 and that the bottle-neck extend about one inch above the disk or plate 19 and about one inch below the disk or plate 20. Within the up-

per end of the bottle-neck may be applied in the usual way an ordinary cork or stopper 28.

The several parts being in the position shown, the contents of the bottle may be readily poured therefrom upon the removal of the cork or stopper 28, and one of the purposes of my invention is to provide for a free flow of the liquid from the bottle. During the operation of pouring the liquid from the bottle the stream of liquid will of course be subdivided while passing through the attachment constituting my invention, but the parts of the stream will come together again before leaving the bottle-neck. Upon the return of the bottle to its upright position the disk valve 25 will close down against the outlet-opening 24 in the lower disk or plate 20. Should any one in tampering with the bottle succeed in pulling away the upper disk or plate 19, the spring 21 will close down upon the hinged valve 25 and keep the latter closed, thus interfering with both the inflow to and outflow from the bottle and exposing the fact that the bottle was not in its original condition. I do not limit the invention in every instance to the employment of the cylinder 16, since I may prefer to secure the disks or plates 19 20 directly within the grooves formed in the bottle-neck; but the employment of the cylinder 16 renders it very convenient to secure the disks 19 20 a proper distance apart and to introduce the entire attachment at one operation into the bottle-neck. The metal cylinder 16 being of thin metal will occupy less space within the bottle-neck than would a glass cylinder cemented into said neck, and hence I prefer the metal cylinder or tube 16, but do not exclude from my invention the employment of a glass cylinder in lieu thereof.

The metallic parts of the attachment may be coated or otherwise protected in the various known ways to avoid any corroding thereof by the action of the liquid contents of the bottle.

The cylinder 16 may be provided with one or more side apertures 29, through which the spring 21 may be observed when it is in its proper normal position, and a user of the bottle failing to see the spring in such position would be thereby warned that the bottle was not in its original condition and had probably been refilled.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An attachment for bottle-necks, the same comprising the upper apertured plate or disk 19, the lower valved plate or disk 20, and a contractile spring 21 intermediate of and connecting said disks or plates, combined with means for securing said attachment within the bottle-neck; substantially as set forth.

2. An attachment for bottle-necks, the same comprising the upper apertured plate or disk 19, the valved disk or plate 20, and the volute spiral spring 21 secured at one end to the

outer portion of the disk or plate 20 and at its other end to the central portion of the disk or plate 19, combined with means for securing the attachment within the bottle-neck; substantially as set forth.

3. An attachment for bottle-necks, the same comprising the upper apertured disk or plate 19, the lower disk or plate 20 having the opening 24 therein, the hinged valve 25 upon said disk or plate 20, and the volute contractile spring 21, connected at its lower outer end to said disk or plate 20 exterior to the hinge for said valve 25 and at its upper end to the central portion of the disk or plate 19, combined with means for securing said attachment within the bottle-neck; substantially as set forth.

4. An attachment for bottle-necks, the same comprising the upper apertured disk or plate 19, the lower valved disk or plate 20, and the interposed volute spiral 21 disposed between said disks or plates 19, 20, and in its integrity constituting a barrier-plate, the larger end of said volute being adjacent to the disk or plate 20 and encompassing the valve thereof, combined with means for securing said attachment within the bottle-neck; substantially as set forth.

5. The bottle-neck having the annular grooves 12, 13, and the cylinder 16 having the beads or flanges 14, 15, within said grooves for locking said cylinder in position, said cylinder also having the internal annular grooves 17, 18, combined with the upper apertured disk 19 held at its edges within said groove 17, the lower valved disk 20 held at its edges within said groove 18, and an interposed contractile spring connecting said disks or plates 19, 20; substantially as set forth.

6. An attachment for bottle-necks, the same comprising the upper apertured plate or disk 19, the lower valved plate or disk 20, and the interposed contractile spring 21 connecting said plates or disks, combined with the grooved cylinder inclosing said plates or disks and spring, and means for securing said cylinder within the bottle-neck; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 28th day of March, A. D. 1901.

ALBERT A. FRECKMAN.

Witnesses:

CHAS. C. GILL,
GUNDER GUNDERSON.